

Abstract

Energy Modeling in the Architectural Design Process examines the integration of energy modeling and analysis into an established architectural design process, and aims to determine its effectiveness in informing sustainable and intelligent design development. This was completed using Sefaira Architecture, a software that inspects a digital three-dimensional building model to estimate its overall energy use, and determine its strengths and weaknesses in energy retention and conservation. The subject of this test was a previously designed model of a high-rise steel structure, and Sefaira was applied with the goal of evoking stronger design development.

The following analysis details the initial design process, the systematic application of Sefaira Energy modeling, and the design response to data found through these climate and energy studies. The design is given a clear set of goals and objectives that Sefaira is also used to monitor the effectiveness of. The study also discusses how this additional thoroughness can be streamlined into an existing process in a way that strengthens and improves architectural design, harmoniously layering creative design with technical systems.

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